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ABSTRACT

The author presents a discussion of certain portions of Arthur Jensen's controversial article. The general conclusion is that Jensen has not provided substantial evidence that there are differences in neural structure among children from different social or ethnic groups which are genetically determined. The reviewer reacts to Jensen's conclusion "that schools and society must provide a range and diversity of educational methods, programs and goals, and occupational opportunities, just as wide as the range of human abilities." While the reviewer finds no objection to this general statement, he feels that the premise upon which it is built is rather flimsy because of the implication that individuals of different backgrounds are genetically different. Other criticisms of Jensen's article include his over-reliance on genetic authorities, a failure to suggest a research design capable of handling certain difficulties, and the drawing of premature conclusions. (BW/Author)

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A CRITIQUE OF JENSEN'S ARTICLE : HOW MUCH CAN WE BOOST IQ AND SCHOLASTIC ACHIEVEMENT ?

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In the Winter, 1969 issue of The Harvard Educational Review, 123 pages were devoted to a scholarly paper written by Dr. Arthur Jensen, professor in education at the University of California, Berkeley. His beginning sentence reads as follows : "Compensatory education has been tried and it apparently has failed." His explanation for this failure was attributed possibly to the fact that black children are genetically different from white children. He writes, "...So all we are left with are various lines of evidence, no one of which is definitive alone, but which, viewed altogether make it not an unreasonable hypothesis that genetic factors are strongly implicated in the average Negro-white intelligence differences."

Such a stand on alleged genetic inequality between black and white had the expected repercussions across the country at a crucial time when the blacks have developed extremely sensitive attitudes regarding their self-image. How did this alleged inequality take place ? According to Jensen, although he acknowledges that this is speculative, when blacks were brought as slaves to this country, they were selected for docility and strength, rather than mental ability, and that through selective mating, the mental qualities never had a chance to flourish. We feel that Jensen's speculation that slave traders deliberately eliminated those who were bright is somewhat farfetched. It is to be noted that, if this were the case, we could assume that the bright Negroes who were left behind were probably genetically superior !

Jensen's article was reprinted as Reprint Series No. 2, in June, 1969, together

with reviews by the well-known psychologists and geneticist, Jerome Kagan, J. McV. Hunt, James F. Crow, David Elkind, Carl Bereiter, and Lee J. Cronbach. The purpose of this present article is directed towards an evaluation of the controversy for the general reader, and is therefore written in simpler language than the critiques of the aforementioned psychologists.

It would be of interest at this point to refer to the chronicles of history regarding the lack of intellectual competence among slaves. In a letter addressed to his friend, Atticus, the philosopher Cicero, from Rome, wrote the following :

> "Whatever you do, Atticus, do not buy English slaves for the English people are so dull and stupid that they are not fit to be slaves in the household of Atticus." (Faris, 1937, p. 329)

A few decades ago, an English traveler visiting these shores, worte the following remarks about the lack of accomplishment pertaining to 'white Americans' :

> "They are lazy, apathetic people, eating coarse food and indifferent to the arts and comforts of life. Backward and inferior, they have failed to produce a good poet, a capable mathematician or a man of genius in a single art or a single science," (Pettigrew, 1964)

Anyone reading these remarks today would be inclined to attribute this stereotype thinking to individuals prejudiced towards the black man.

Jensen feels that no one has yet produced the evidence that IQ could be equalized by control of the environment and education. While this statement appears quite logical and telling, we feel a formulation of such a challenge to the environmentalist is totally inappropriate. What it does is reveal some basic lack of social saphistication on the part of the author. Is it at all possible under present conditions to have two groups, black and white, with equalized "environment and education ? " What Jensen is asking is well-nigh impossible.

Jensen's Fight Against a Straw Man

In the early part of his paper, Jensen points out that the impression one gets in

reading books of psychology and education is that "genetic factors are usually belittled, obscured or denigrated probably for reasons of interest mainly on historical, political and ideological grounds." There seems to be a concerted effort on the part of the social scientists to disregard the influence of heredity. He quotes a few statements which he claims are in widely used texts (no sources of these texts are given). However, it is interesting to note that most of the statements from the textbooks which he quotes do not seem to the writer to "belittle, obscure or denigrate" the genetic determinants of personality. All they seem to indicate, primarily, is the difficulty of finding the specific contribution of heredity and environment to achievement and I.Q. For example, he seems to find exceptions to the following statement : "There is no evidence that nature is more important than nurture. These two forces always operate together to determine the course of intellectual development." This seems to be the stand taken by most psychologists , in view of the complexities involved in trying to determine the individual contributions of the environment and nature to man's intellect. As we develop our own theme in this paper, we shall see that it is totally inappropriate or even naive to expect at this time to answer the question. Jensen quotes a published speech by a Commissioner of the U.S. Office of Education to the effect that children "...all have similar potential at birth. The differences occur shortly thereafter." The content of a speech of a Commissioner of the U.S. Office of Education does not necessarily represent the views of the scientific sector, but may only be the opinion of a government official on a speaking tour. Selecting at random six books from my own library on psychology and education, I read the following :

Munn (1961) : "differences in intelligence are both hereditary and environmental, except in identical twins, where they are purely environmental." (. 136).

Murphy: (1951) "until the time comes, we might do well to regard each unfolding capacity as the expression of a genetic disposition that is being warmed and nurtured in a particular direction. (p. 361).

McDonald (1965) : "Heredity sets the initial limits to the organic conditions under which behavior development occurs, although the mere presence of requisite organic conditions does not guarantee behavior development." (p. 460).

Dashiell (1949) : "At every step, then, it is the intricate interplay of the protoplasmic unit (gene, cell, organ, etc.) with its surrounding conditions that determine what the next stage will be. (p. 63).

Mussen, Conger and Kagan (1969) : "The child's behavior and personality are, at any one time, a product of the continuing interaction of nature and nurture." (p. 33).

Stone and Church (1968) : "On this dichotomy and the one that follows, we shall not take sides, preferring to seek a synthesis of nature and nurture."(p.196)

These quotations in no way seem to "belittle, obscure or denigrate" genetic factors. What they say actually is that neither nature or nurture should be given priority with regard to intellectual behavior.

The Council of the Society for the Psychological Study of Social Issues recently put out a news release in response to Jensen's article, which includes the views of some outstanding psychologists in the United States. Similar positions have also been expressed by other social scientists, sociologists, and anthropologists (Pettigrew, 1964). The following is the stand of the SPSSI :

> "The unborn child develops as a result of a complex, little understood interaction between hereditary and environmental factors. This interaction continues throughout life. To construct questions about complex behavior in terms of heredity versus environment is to over-simplify the essence and nature of human development and behavior."

It is to be noted that all these statements acknowledge both genetic and environmental factors in determining behavior and I.Q. Therefore, it would seem that Jensen is fighting a straw man when he states that statements of psychologists "apparently filter up to high levels of policy making " (p. 29).

Jensen reports that Thorndike, in 1905, stated the following : "In the actual

race of life, which is not to get ahead but to get ahead of somebody, the chief determining factor is heredity." Since then, according to Jensen, the "preponderance of evidence has proved him right." First of all, the fact that a psychologist in 1905 states that heredity is most important should not necessarily be given unusual recognition. About the same period of time, Sumner a well-known sociologist, viewed poverty as the natural result of inherent inferiorities (Keller, 1919). To state that the "preponderance of evidence has proved Thorndike to be right" is somewhat far-fetched, in view of the contrary evidence that could be marshalled against the genetic stand. While Jensen puts Thorndike on the side of the genetic determinists, it is interesting to note that Stone and Church (1969) place Thorndike on the side of the environmentalists. Thorndike's statement was made in 1905, and was included in a short article published in Philosophy, Psychology and Scientific Method, a journal. We decided to check his book on Educational Psychology (1918) where we could have a more formal expression of his views about the nurture-nature controversy. This is what he wrote :

> "It is impossible at present to estimate with security the relative share of original nature, due to sex, race, ancestry and accidental variation, and of environment, physical and social, in causing differences found in men. One can only learn the facts and interpret them with as little bias as possible, and try to secure more facts. This interpretation is left to the student but with certain cautions in addition to, or in amplification of those already explained." (p. 397).
>
> "In general, differences between races in original capacities are small in comparison with the range of differences within either race, and the amount of overlapping is great." (p. 353).

These views expressed by Thorndike do not seem to represent the views of a genetic determinist. Most psychologists today would agree with his statements.

Jensen's Predecessors

The polemic regarding black-white intellectual differences has grown quite heated in recent years. We are somewhat reluctant to include Jensen with those

psychologists who have emphasized the genetic differences between black and white, in view of his more scholarly presentation and the subtlety of his arguments. Nevertheless, his conclusions have already caused harm and are expected to cause more harm. Jensen indicates in his Journal article that he would not recommend the widespread use of his ideas without further research, "I am trying to stimulate more research. There should not be any fear of finding biological differences between groups."

However, on the basis of his article, segregationists took to citing it in court, as the word of science. The New York Times of April 11, 1969, reports that attorneys resisting a school integration case in Virginia have used Jensen's article to support their case. A Congressman put all the 123 pages of the article into The Congressional Record. Edson, in a review of the article in the Magazine section of The New York Times, August 31, 1969, provides a sympathetic view of the controversy (sympathetic to Jensen), which was read by probably millions of readers.

According to Pettigrew (1964) there are three psychologists prior to Jensen who have publicly taken a stand on the Negroes' alleged genetic inferiority. Garrett, Professor Emeritus from Columbia University, who was at one time chairman of the Department of Psychology, described the "equalitarian dogma" of the experimentalist as the "scientific hoax of the century." Dr. Garrett, as far as we know, did not himself conduct any research on black-white differences. On September 21, 1956, the U.S. News and World Report featured an article by Frank C.J. McGurk, with an impressive title, "A Scientist's Report on Race Differences", in which McGurk stated that "Negroes as a group do not possess as much capacity for education as whites as a group. This has been demonstrated over and over." (p. 96). His conclusions were based on former studies and on his own study, in wh ich he used an unvalidated intelligence test he himself had devised.

He conciously or unconsciously eliminated all those studies which contradicted his bias McCord and Demerath (1958) , who criticized McGurk's report, had the following to say : "If McGurk still wishes to retain his title as scientist, we challenge him to explain why the varied qualifications of his six 'authoritative' studies were disguised. Why did he fail to mention the equally valid work of men like Long and Klineberg ? Was this simply oversight or was it intellectual dishonesty put to the service of prejudice ?" (p. 134).

In 1958, Shuey, a former student of Garrett, provided the American public with a large volume entitled, The Testing of Negro Intelligence , in which she reviewed over 200 studies on the intellectual differences between blacks and whites. However, half of her studies were carried out prior to World War II, when studies were less sophisticated, and also when in 75 percent of the cases, black subjects came from tightly segregated Southern and border communities. The overwhelming tendency for blacks to score lower than whites provided her with the conclusion that there is "...the presence of some native difference between Negroes and whites as determined by intelligence tests."

According to Edson's report in The New York Times Magazine of August 31, 1969, the Jensen article received wide coverage in the following manner. The Editors of the Harvard Educational Review sent a copy of the article to the Boston Globe . While the Globe reporter was phoning Jensen about the article, by an odd coincidence , George Jones of The U.S. News and World Report , was in Jensen's office when Jensen took the call from the Boston Globe reporter. Jones apparently sensed a good story, and the result was an interview which appeared in the magazine, and which unleashed the torrent of controversy. "Can Negroes Learn The Way Whites Do ? Findings of A Top Authority " (U.S. News and World Report, March 10, 1969) was the title which, as in the case of McGurk's study, is rather impressive.

While it may have been a coincidence that the phone call arrived at the time Jones was in Jensen's office, this does not explain the presence in Jensen's office of a reporter from a news magazine which already had a history of sensational articles on black-white intellectual differences. Considering its past performance in the area of racial differences, Jenson may not have been sufficiently circumspect in having the representative of The U.S. News and World Report in his office. There have been previous efforts on the part of the U.S. News and World Report to pursue a consistent policy of reporting alleged inequalities of intelligence between blacks and whites. In a series of articles in 1956 and 1957, the periodical claimed that the educational system in the District of Columbia's public schools was well on its way to ruin because of desegregation policies. Five years later, 1959, according to Pettigrew, a factual assessment of the changes were made. It was found that both Negroes and whites shared in achievement test scores increments .

Dreger (1967) in his review of the second edition of Shuey's book (1966) finds that she maintains a "more respectable statement of the hereditarian position." (p. 50). According to Dreger, it would seem that since both black and white produce individuals at both ends of the intelligence distribution, there can be no clear-cut answers regarding superiority-inferiority of races. The following represents Dreger's puzzlement over the question : "...What does one do with the facts, for instance, that D.C. schools, now mostly Negro, reached nearly the top in percentage of highest achievers in the 1965 National Merit Scholarship tests, and also that this year D.C. Negroes come at the top of rejections for the draft ? " Until these considerations can be ruled out, - if they can be - the vast accumulation of data in Shuey does not speak unequivocably for genetic determination of racial differences." (p. 50).

It is interesting to note that Jensen reports in his Harvard article on another

feature carried by The U.S. News and World Report (October 17, 1966) entitled "Mental Tests for 10 Million Americans -- What They Show" . This was based on a report by the U.S. Office of Education. This is what Jensen states :

> "As of 1966, the overall failure rate for Negroes was 68 % as compared with 19 % for whites. Moynihan 1965) has estimated that during the same period in which the Armed Forces Qualification Test (AFQT) was administered to these large representative samples of Negro and white male youths, approximately one-half of Negro families could be considered as middle class or above by usual socioeconomic criteria. So even if we assumed that all of the other 50 % of Negroes on the SES-scale failed the AFQT, it would still mean that at least 36 % of the middle-SES Negroes failed the test -- a failure rate almost twice as high as that of the white population for all (italics mine) levels of SES . Do such findings raise any question as to the plausibility of theories that postulate exclusively environmental factors as sufficient causes for the observed differences ? " (p. 87).

Two major statements in the paragraph seemed unusual to the writer. First, the high percentage of Negro failure, and second, the fact that approximately 50 % of the Negroes belonged to the middle-class. He therefore decided to check that particular issue of the U.S. News and World Report . Jensen's quotation was found to be correct. However, in full view, there is a table in the article which shows that the 68 % rate of failure pertains to Negroes living in the deep South , while the rate of failures for other areas were : South Central 57 %, Northeast 45 %, Midwest and West 37 %. Therefore, it would seem that 68 % pertains only to Negroes in the Deep South while the percentage is nearly halved in the States where social and economic conditions are superior to those in the South. A more judicious interpretation of the data would tend to reinforce the position of the environmentalists. By inadvertently overlooking the other figures in the table, Jensen perpetrated a mistake which had been made by the author of the feature article in U.S. News and World Report . The second issue is the social and economic composition of the Negro group. Jensen refers to a monograph by Moynihan who estimates that 50 % of the Negroes were middle-class. Rather than quote

an outside source, Jensen could have used the description provided by the article itself.

These are some of the remarks that could be found in the article :

> "These test results mirror America's erratic progress toward its elusive goal of educational equality . They also reflect the host of disturbing social and economic problems that face the nation. For example, the 1963 Department of Labor study reported that the majority of young men failing the AFQT , white and Negro alike, were the product of poverty. Forty percent of them had never gone beyond grammar school, four out of five did not finish high school, almost one-third came from broken homes, and one-fifth came from families that have needed public assistance." (p. 78)

Such a description somehow seems to be at odds with Moynihan's estimate of class distribution among the Negroes . In a demographic study of New Haven, Hollingshead and Redlich (1958) found that only 5 % of the Negroes could be included in the category of middle class and above. 36.9 % belonged to the semi-skilled group, and 58.1 % to the unskilled group. These statistics were obtained from a Northern industrial town which provides more economic opportunities. There is no question that conditions are improving, but they do not seem to be any where near Moynihan's estimate. Moynihan (1965) himself does not seem to be very optimistic about the Negroes having equal opportunities in the very near future. He indicates that there are two reasons for this :

> "First, the racist virus in the American blood stream still afflicts us. Negroes will encounter serious personal prejudice for at least another generation. Second, three centuries of sometimes unimaginable mistreatment have taken their toll on the Negro people. The harsh fact is that as a group, at the present time, in terms of ability to win out in the competitions of American life, they are not equal to most of those groups with which they will be competing. Individually, Negro Americans reach the highest peaks of achievement. But collectively, in the spectrum of American ethnic and religious and regional groups, where some get plenty and some get none, where some send eighty percent of their children to college and others pull them out of school at the 8th grade, Negroes are among the weakest."

A personal communication concerning Moynihan's statement, quoted in the Jensen Report has been received, as follows :

"Dear Dr. Sanua :

"Frankly I hadn't noticed the reference in the Jensen article before. I don't know exactly what Jensen meant, and don't agree with the passage the way it now reads.

"I would suggest asking Professor Jensen to expand on what he had in mind. In any case, thank you very much for bringing this item to my attention."

Sincerely,
s/
Daniel P. Moynihan
Counsellor to the President "

March 2, 1970
The White House
Washington, D.C.

The following sections will present some of the arguments offerred by Jensen, which have led him to believe that the evidence is more consistent with the genetic hypothesis of intelligence than the environmental hypothesis.

Level I and Level II Intelligence

Jensen remarked that teachers of disadvantaged children point out that many of the children seem to be much brighter than what their IQ would indicate. He objectified this observation by devising tests that would measure this apparent ability of lower class children to learn the names of 20 or 30 of their classmates in a few days and still do very poorly in school work. Jensen found that he was dealing with two different sets of learning abilities, which he labelled Level I, associative learning , and Level II, cognitive or conceptual learning and problem-solving. In associative learning, the child is presented with a series of unrelated objects and he is asked to recall them after they have been removed. Lower class and middle class children, despite large I.Q. differences, had similar scores. He found that lower class children in the I.Q. range of 60 to 80 , do markedly better than middle class children who are in this I.Q. range. For Level II learning, children were first shown four categories of objects such as animals, furniture, clothing, foods, -- then they were mixed, and shown individually. Children were asked to recall the objects they saw. The middle class children remembered the categories and, as a result, were able to recall many more individual objects. The lower class children failed to use the categories, and tried to recall objects on the basis of order in which they were presented, and, as a result, the recall was not efficient.

It would seem that the first experiments for Level I were carried out by Jensen, while the Level II studies were carried out by one of his students, Glasman (1968) for his doctoral dissertation. Regarding the Level I findings, Jensen indicated that lower class children,

whether "white, Negro, or Mexican-American" , perform as well on these direct learning tests as do middle-class children. While Jensen used "lower class children" of different ethnic and cultural backgrounds for Level I experiments, his student "confounded SES and race" , since the low SES group were Negro children and the middle SES group were white. His interpretation of the data is that while "learning is necessary for Level II , no one doubts, but certain neural structures must also be available for Level II abilities to develop."/ (p.114) Thus, he indicates that ordinary I.Q. tests are unfair, because they tap only one part of the total spectrum of mental abilities, while they do not reveal that aspect of mental ability in which the disadvantaged child could perform. In all this presentation, while Jensen admits that Level I associative learning is equal among all social class and racial groups, the specific experiments of Level II cognitive learning, compared poor blacks with middle-class whites. Lee Edson, in his New York Times review of the article, misinterpreted the data, since he discusses white superiority over black children, and the factor of social class does not even enter in his discussion. Thus, the reader is misled into believing that blacks, irrespective of social class, are genetically inferior, because their performance on Level II is poor.

A more judicious approach would have been for Glasman not to "confound SES and race" , and have two samples, middle class and upper class, both white and black, rather than compare lower class blacks with middle class whites. Jensen points out that he is at present analyzing the results of a sample of 5,000 children for Level I and Level II learning abilities, and we suppose that, in view of the large number of cases, SES and race will not be "confounded."

While we shall not quarrel with Jensen's findings about the two levels of intellect, we would , however, argue the interpretation which he offers to explain the differences.

Jensen attributes these differences to "neural structures" , whereas we would be more inclined to attribute them to environmental forces. The following two examples will illustrate the reasons why lower class or black children obtain low scores on the ordinary I.Q. tests. McV. Hunt reports that in Durham, North Carolina, toddlers from black neighborhoods were periodically tested for the purpose of examining their psychological development. After two years of testing, these toddlers scored 110 on the Binet IQ, while other two-and-a-half year old children from the same neighborhood scored only 70 to 80. McV. Hunt believes that mothers who were present during the testing noticed on which items their children did well, and on which they failed. Most likely, these mothers provided their children with an opportunity to practice those tasks they tended to fail, thus explaining their high performance. The mothers, therefore, appear to have been effective teachers. This isan indication that poor children's intellectual decline could be prevented if more stimulation is provided during the early years of the child's life.

In another study, as reported by McCandless (1961) a group of lower class Negro mothers were asked to read to their youngsters for ten minutes every night. At the age of 20 months, it was found that these children were verbally superior , by far, to other children used as controls. As indicated by the investigator, Irwin Orvis,

> "The study is especially provocative when we consider the relations that have been found between speech and intelligence."

Furthermore, Orvis reports the amazement and chagrined amusement of the experimental mothers, who stated, "You asked us to read ten minutes a day, but I can't get away from that kid. He wants me to read to him all the time." (McCandless, p. 260).

What these two experiments seem to show is that probably with the earlier enrichment of the child's intellect and interests, the greater the possibilities of instilling in the child the abilities required for Level II cognitive thinking.

Bettelheim reported that "Oriental" children in Israel who were reared in kibbutzim had their I.Q. raised by 25 points. (Study by Smilansky, 1966)This type of evidence does not seem to convince Jensen, since he points out that these are Oriental Jewish children, and not black children. He agrees with Bettelheim that it would be worthwhile to raise Negro children in kibbutzim, and see whether their I.Q. could be improved to the same extent This is another instance where Jensen advocates a type of research which would be very difficult to carry out.

However, it is to be noted that the major point Jensen makes in his paper is that lower class children, irrespective of background, have neural deficiencies, and not only black children, as he seems to indicate by his support of Bettelheim's suggestion. The fact that some Head Start programs showed that the I.Q. changes were not permanent does not necessarily support the genetic hypothesis, particularly that the children are returned to the same unstimulating environment. As Kagan has indicated, "It would be nonsense to assume that feeding animal protein to a seriously malnourished child for three days would lead to a permanent increase in his weight and height, if after 72 hours of steak and eggs, he was sent back to his malnourished environment. It may be that compensatory education is of little value, but this idea has not been tested in any adequate way up to now." (p. 128).

Twins Reared Apart and Heritability

One of the basic arguments used by Jensen to prove his point is that twins reared apart (Burt, 1966) have on the average 6 points of discrepancy in I.Q., despite the fact

that they were spread over the entire range of socioeconomic levels. The fact still remains that, in instances, the difference was zero, while in the extreme case, the difference was 20. Only the effect of environment could explain this wide discrepancy between identical twins. Two people taken at random from the population would have an average difference of 13 points. However, if a trait is assumed to be under genetic control, no one can assume that differences in that trait between two populations, must be due entirely to genetic differences. (Kagan, 1969)

In his criticism of Jensen's article, Kagan (1969) indicates that Jensen combines two facts to draw a logically faulty conclusion that there are genetic determinants behind the lower I.Q. of black children. These two facts are that the more closely related the two people are, the more similar is their I.Q., thereby suggesting that there is a genetic contribution to intelligence test performance. The second fact is that Negro children generally obtain lower I.Q.'s than do whites. According to Kagan, the error in Jensen's logic could be illustrated by using stature as an example. It was found that Indian children living in rural areas of most Central and South American countries are significantly shorter than the Indian children living in urban areas. Jensen would indicate that the difference is due to genetic causes. However, this difference may be due to environmental causes, such as malnutrition and disease. Professor Washburn, (1963, p. 25) also uses the analogy of stature. Although he indicates that inheritance is important in determining stature, no one would think of comparing the stature of a well-fed and a starved group and claim that the difference is all genetic. He states that "There is no more reason to expect a culture-free intelligence than a diet-free stature."

Another illustration is offered by Pettigrew (1964) in which the effect of heredity is not denied. He views intelligence like longevity. It would seem that longevity may typify many families, and the trait may therefore be under genetic control. Yet, despite this, life expectancy in the United States has doubled in the past century. What has happened is that better medical care, diet, etc. has enabled the American to use his longevity potential to the fullest extent. Thus, our phenotype intelligence does not even come close to our genotypic potential, and for the Negro, because of unfavorable environment, the discrepancy is wider than among the white.

Kagan reports that Gottesman (1968) .. in a study of 38 pairs of identical twins, found that there was a discrepancy of 14 I.Q. points between the twins, who were reared in different environments. This difference is to be found on the average between black and white populations. This study was not cited by Jensen.

At this time, it would be of interest to refer to an experiment carried on with animals. While animals cannot be used to prove anything about humans, the implications of the findings are important. Cooper and Zubek (1958) after raising 13 generations of bright and dull rats, exposed the two groups to three contrasting environments, from a restricted one to an "enriched environment." It was found in maze learning experiments, that the two genetically diverse groups did almost equally well. For example, there was little difference between the dull strain and the bright strain in restricted environment, on the number of errors in maze learning. Thus, according to Pettigrew, similar genotypes may have different phenotypes (e.g. the bright rats in the restricted and enriched environment) and similar phenotypes may have different genotypes (e.g. the restricted bright and dull rats).

Jensen indicates that placement of children in foster homes show the importance of heredity. He states, "Children separated from their true parents shortly after birth and

reared in adoptive homes show almost the same degree of correlation with the intelligence of their biological parents as do children who are reared by their own parents." (p. 52). However, Jensen does not present all the pertinent data. On the basis of this statement, if would seem that the correlation between the I.Q. of the foster child and the natural parents should be in the neighborhood of .49, as found by Burt and Howard (1957). However, there is other evidence to show that environment plays a definite role in enhancing the I.Q. Skodak and Skeels (1945, 1949) followed up 154 children, their true mothers and foster parents. They found, a few years later, that 100 of these children tested closely to their foster parents as far as means is concerned. The true mothers were mentally retarded. The mean I.Q. of these children were from 104 to 118, which meant that their I.Q. was 20 points higher than the mean of the true mothers. Many of these mothers were found to be inadequate, unstable, incompetent and unemployed. It was found, however, that there was higher correlation between the I.Q. of the true mothers and their children, than between foster parents and their foster children. However, according to Skodak and Skeels, this should not "overshadow the more significant finding that the children are consistently and unmistakably superior to thei r natural parents...It is inferred that maximum security, an environment rich in intellectual stimulation, a well-balanced emotional relationship and intellectual agility on the part of the foster parents, all these and other factors contributed to the growth of the child." (Skodak and Skeels, 1949, p. 116).

Scholastic Achievement of Other Minority Groups, Compared to Negroes

Jensen points out that in tests of scholastic achievement and intelligence administered by Coleman (1966), Negroes scored below other disadvantaged minorities, such as Puerto Ricans, Mexican-Americans, and American Indians, despite the fact that the "major sources of environmental influences in determining individual and group dif-

ferences in scholastic performance" were controlled by Coleman (p. 85). The factors that were controlled, as reported by Jensen, included reading material in the home, cultural amenities in the home, pre-school attendance, parents' education, parents' educational desires for child, parents' interest in child's school work, time spent on homework, child's concept (self-esteem). Jensen remarks, in this connection, "If the environmental factors assessed by Coleman are the major determinants of Negro-White differences that many social scientists have claimed they are, it is hard to see why such factors should act in reverse fashion in determining differences between Negroes and Indians..." (p. 86). The obvious interpretation which Jensen would like the reader to make is that the allegedly superior environment of blacks, as compared to the environment of other minority groups, could not compensate for a genetically determined deficiency of the black.

While the above variables may have been controlled, there are other variables Professor Jensen has omitted to mention, that could not be controlled. In connection with the type of schools attended by other minority groups, Coleman states, "While the average Negro elementary school child is in schools where 16 percent of the students are whites, the average percentage of white classmates if 45 percent for Puerto Ricans, 53 percent for Mexican Americans, 57 percent for Oriental Americans, and 60 percent for Indian Americans...Nevertheless, the schools attended by Mexican Americans, American Indians, and Oriental Americans tend to be very much like those of whites..." (p. 212).

Thus, all the pertinent variables may not have been controlled in the study. The percentage of white children among the different minority group children could not be controlled, and, as indicated by the above quotation, the black child was at a disadvantage. The writer feels that background variables could only be superficially controlled by a paper and pencil questionnaire given to very young children. The more subtle background information such as family ethos could not possibly be included in the study.

Sister F.J. Woods (1956) discussed the parent-child relationship among various minority groups in the United States. It would be worthwhile to compare such relationships among Negroes and other minority group children who seemed to have performed better than the black children This is what she has to say about the black children :

> "Of all family types, the Negro family seems to have the most tenuous parent-child relations. Between father and children the ties are generally very loose ; between mother and children a closer relationship exists, but it seldom measures up to that of other family types. Children grow up relatively freer of constraint than do children of the dominant American group, a fact which undoubtedly contributes to the higher rate of delinquency among Negroes." (p. 299).

Regarding the Mexican-American pattern, this is what she writes :

> "The child is usually closer to the mother, for mothers are regarded as "softer" by nature than the "harder" fathers. A mother may be quite demonstrative in her affection for the small child, kissing and fondling the youngster. As the child gets older, she shows her affection by not informing the father of his misdeeds, or by intervening when the father is meting out punishment."

It would seem that unfavorable family interaction, besides pressures and attitudes of the dominant group, may contribute to the low self-esteem of the Negro. While it is true that Coleman controlled for self-esteem in his study, by using simple questions, some doubt may be raised about the validity of using simple questions to measure such a complex trait as self-esteem. Sanua (1959) has discussed the validity of paper and pencil tests to measure personality traits. He hypothesizes that differences between cultural and generational groups in test results may be more reflective of the values which are instilled by the different cultural and generational groups. Thus, it is possible that the Negro adolescent may be more reluctant than the Puerto Rican child to admit that most of his classmates do not like him.

Kardiner and Ovesey (1951) argue that the American Negro at the present time is still degraded by virtue of his former slave status. They feel that the discrimination

imposed on the American Negro "constantly develops an unpleasant image of himself." Most of the studies on social distance scales show the Negro to be the lowest in desirability. A recent study by Gordon (1964) shows that while 45 percent of white Americans would date a Mexican, only 25 percent of these students would date a Negro.

The apparent superior environment of the black, compared to the environment of other minority groups does not compensate , we believe, for his psychological environment. The caste variable is not eliminated by the best control of socioeconomic status. The Mexican Americans, Puerto Ricans, and American Indians have their own cultural background, a language, and customs of their own. The American Indian, in particular, despite dire poverty, is conscious of an interesting past, when he was able to challenge the white man's rule in this country. The lack of historical background has led American Negroes to fill this vacuum by wearing African clothing, dashikis, and Afro-haircuts, and even learning Swahili. We could assume that no American Indian, Puerto Rican, or Mexican American feels the need to say that "Indian, Puerto Rican or Mexican, or Chinese is beautiful." Despite all the problems incurred by these various minority groups, their sense of pride and dignity could never seriously be affected. A recent poll by Harris found that among 13 countries where citizens were interviewed about their attitude towards interracial marriages, the American public was the last of the 13 countries with regard to their negative attitude towards it. In other words, of the major Western countries of the world, social distance from the Negro is highest in the United States.

Malzberg (1965) provides us with a further illustration of the effect of the black skin on one's adjustment. He showed that black Puerto Ricans had the highest morbidity rates in schizophrenia than any other minority group. Total white admission rate per 100,000 was 42.1 ; white Puerto Rican, 100.6 ; total Negro (non-Puerto Rican),

156.6; and non-white Puerto Rican, 307.6 per 100,000. Thus, the black Puerto Rican suffers three times more schizophrenia than the white Puerto Rican. The discrepancy between the latter two groups could not be attributed entirely to socio-economic conditions. The Puerto Rican who is black somehow seems to carry added burdens.

Differences Between Blacks and Whites on I.Q. and Mental Retardation

This point has already been discussed earlier in the paper, but we shall now present more formally Jensen's contention that the black is genetically inferior to the white. He points out that while 16 percent of the whites exceed an I.Q. of 115, only 3 percent of the Negroes exceed that I.Q. In Maryland, it was found that 31 percent of the Negroes had an I.Q. of 70 and below, while among the whites, the percentage was 1.5 percent. Wilson (1967) as reported by Jensen, found that even black children of upper-class Negro families scored lower than white children of lower class by 3.9 points. Jensen finds further confirmation to this in Shuey's book summarizing the literature up to 1965. He agrees with Shuey that it seems improbable that upper and middle class Negro children could have no more culture opportunities provided them than white children of the lower and the lowest class.

Now, what about the degree of mental retardation among the same social class in the black and white groups ? Jensen reports on Heber's (1968) study which shows that the white-black ratio of mental retardation to be 1 to 13.6 for Class I and Class II subjects combined. According to Jensen, it "would be hard to claim that the degree of environmental deprivation typically associated with lower class status could be responsible for this degree of mental retardation." (p. 83). Jensen seems to be convinced that if social class among whites and Negroes is controlled, the environment would be controlled. Guilford (1959) suggested that there may be as many as 120 factors or relatively independent com-

ponents to general intelligence. Therefore, controlling for socioeconomic status, which seems to satisfy Jenson, is scarcely adequate as a control to study black and white differences. The criteria of education and vocation achieved by Negroes in our society could hardly be used as a measure to compare with white achievement. Most successful Negroes, carrying the burden of a difficult past, are daily facing adjustment to the dominant white community. Even if their children attended private schools with a predominantly white population, they would still have difficulties. The subtle expressions of prejudice and discrimination are too difficult to evaluate, and we feel that the control of social class among whites and Negroes would not really eliminate differences in the individual experiences of the children.

A recent study by Langner (unpublished) on the prevalence of mental impairment of children of white, black, and Puerto Rican parents, may throw some light on the low intellectual level and achievement of upper class Negro children. It was found that 8 percent of white upper-class children were psychologically impaired, while 20 percent of the low income white group exhibited the same degree of impairment. Contrary to expectation, no differences were found between upper-class and lower-class children of black parents, 18 percent and 19 percent of impairment, respectively. This holds true, but to a lesser degree with Spanish-speaking children, 15 percent and 17 percent respectively. According to Langner, this suggests that as Negroes attain higher incomes, various environmental forces such as prejudice and job discrimination, which, in turn, affect family organization and relationships, prevent their children from obtaining a commensurate reduction in impairment. Langner found that 29 percent of the children of upper class black families were hostile to their fathers, while only 8 percent of the lower class Negro children were reported as hostile to the father. Langner's hypothesis is

that while, in general, the Negro home may be matriarchial, the high income Negro home is attempting to break this pattern through greater earnings of the father. It would seem that this shifting of family pattern during the generation which is upwardly mobile may cause a great deal of conflict. It appears that in all studies which have tried to control for socio-economic differences between black and white, there was no control for psychological adjustment. Because of this impairment, a large number of children from upper-class black homes could not possibly use their full intellectual potential and, as a result, may have depressed the mean for their group.

Sarason and al. (1960) have shown that the degree of anxiety children experience affects the quality of their intellectual behavior. Anxiety is an uncomfortable feeling that affects concentrated thought. Children become flustered in problem solving situations, and prevent accurate solutions. In reply to this argument, the geneticist may point out, however, that it is the basic inadequacy of the individual which is genetically determined, that causes the disturbance, because of the individual's inadequacy to cope in a society that requires efficiency in problem-solving.

There are other types of evidence to show that higher achievement or education for minority groups does not necessarily bring with it the expectation of a higher well-being. Jaco (1960), in a study on treated mental illness in Texas, found that while education of the Anglo-American was negatively correlated with the rate of mental illness (minus .30), education was positively correlated with the morbidity rate of blacks (plus .30). Contrary to expectation, in a study of blacks in Philadelphia, Parker and Kleiner (1966) found more mental illness among Negroes migrating from the North than among Negroes coming from the South. Somehow, it would seem that the stress of lower class living, which is more characteristic of the black from the South, is not the major factor in Negro mental

illness. Parker and Kleiner indicated that the discrepancy between aspiration level and actual vocational achievement was more important in causing stress, than poverty itself. The Negro from the North had the highest discrepancy between his level of aspiration and his actual level of achievement.

We shall now present more detailed data on two studies which have controlled for the domographic background of the tested children, black and white. Brown, in a study which was carried out twenty-five years ago (1944) found that the overall I.Q.'s of black and white children of kindergarten age was significantly different (black children, 100.78; white children, 107.06). The discrepancy was accentuated by the lower mean score obtained by the black females and the higher mean score obtained by white females. When the I.Q. scores of black and white males were compared, the discrepancy was quite reduced. In separating the group according to the father's occupational level, he found some interesting results. Negro male subjects were not found to be inferior in tested intelligence to white subjects among Group III (clerical, retail business and skilled trader). The slight difference at this level vanishes almost entirely at the lower occupational levels. It is only in the case of professional and semi-professional paternity that the Negro male child is inferior to white males. Brown points out that in the neighborhood where the Negro children were tested, the illiteracy rate was 1.7 percent, as compared to 16.3 percent for the national norm of blacks, at that time. The small discrepancies which were found by Brown, between Negro and white children, are in contradiction to the large differences found in older children and adults. Brown explains the smaller discrepancies through his "theory of developmental constriction", -- in that there is an apparent deterioration of intelligence among Negro children with increase in age. As the black child grows up, there is an inhibition of spontaneity in verbal behavior and a sharp reduction in the level

of aspiration. In the South, he is even expected to assume an attitude of submissiveness to the whites .

McCord and Demerath (1958) tested 612 lower class Northern urban boys, black and white, who were ten years of age. No significant differences were found with the Kuhlman-Anderson Intelligence Scale and the Stanford-Binet Scale of Intelligence. Furthermore, they controlled for 'home milieu', from a cohesive home to a broken home; and father's 'personality', from a loving father to absent fathers. It was found that both home atmosphere and 'personality' of the father affected the I.Q. Thus, as more background controls are introduced, and with a younger sample, the discrepancies tend to be reduced or disappear, when comparing the I.Q. of the black and white child. This general finding seems to be deemphasized by those who believe in the "genetic inferiority" of the black. As we shall be pointing out in other sections of this paper, the most painstaking control of the background of the Negroes and whites still would not eliminate differences of their "psychological milieu,"

Other Studies Showing the Influence of Environment

A number of studies have shown that when the environment is restrictive, both whites and blacks are intellectually affected (Pettigrew, 1964). An improvement in social conditions and a stimulating environment to both whites and blacks, will reduce the differences. Furthermore, a change from a restrictive environment to a stimulating one is likely to increase the I.Q. of children belonging to any group thus exposed. We agree with Jensen that some threshold may be reached beyond which no increase in I.Q. is to be expected, when the child is to be moved from a poor environment to an enriched environment. We shall now give a few illustrations to support these hypotheses.

Curti (1960) found, in an isolated Caribbean island which offered little

stimulation, that there were no differences in nine out of 14 intelligence measures which were administered to black and white children. It is to be noted that there was no complete equality in the status of the two groups. According to Curti, the data in his study "do not lend support to the conclusion that colored inferiority in intelligence tests has a racial basis." Eyferth (1959) conducted a study in West Germany of 51 mulatto children of Negro American soldiers and German women. Their I.Q. test results were contrasted with a comparable group of 25 white German children. No significant differences were found. However, according to Pettigrew (1964) who reports on the study, there are two factors which make interpretation of the study difficult. On the one hand, it could be stated that these mulatto children were born of Negro fathers who were relatively intelligent in their being able to establish an intimate relationship with a German woman. On the other hand, most of the mothers could not provide the usual cultural environment of the German home. The fact that these mulatto children had achieved equally as white children during the post-Hitler period still remains remarkable. It is to be noted that the degree of Caucasian ancestry among the black does not seem to have any influence on the I.Q. Witty and Jenkins (1936) reported that among intellectually superior Negroes, the "white ancestry" corresponds very closely with the white ancestry of the total American Negro population. The brightest Negro child to be reported in the literature had a tested I.Q. of 200, and no traceable Caucasian heritage. While in practically all group testing of the I.Q., the mean of the black is lower than the mean I.Q. of the white, there is a great deal of overlap. The range of I.Q. is virtually the same in both groups, with a higher percentage of white brighter children at one end of the distribution, and a larger percentage of black children at the other end of the distribution.

A restrictive environment can also have a debilitating influence on white children as well as black children. Gordon (1923) found that children of such isolated groups as canal boat and gypsy families achieved lower I.Q. scores than American Negro children. In the United States, Sherman and Key (1933) found that as the children are further away from big cities and live in isolated hollows in the mountains of Kentucky, the more defective they were, particularly at the time they were 14 or 16. This could not be explained on the basis of migration, since in all the hollows, no matter how far they were from big cities, the six-year olds had reached the average I.Q. level. Six-year olds had been exposed to most of the test items at their level, but by adolescence, the Binet items became more academic. Since schooling in the hollows is sparse, these adolescent children do very poorly.

The most dramatic of the studies that show the relationship between improved environment and increased I.Q. is that carried by Klineberg in 1935. Over 3,000 ten and twelve-year old Negro children in Harlem were administered individual and group intelligence tests. The findings show that the longer the Southern-born child had resided in New York, the higher his intelligence scores. Klineberg made sure that there was no selective bias through migration. He found that school grades of children who moved up North were typical of the entire Negro school population from which they migrated. These studies were repeated in Cleveland, Washington, D.C., and Philadelphia. Another piece of evidence that improved environment can affect the I.Q. scores comes from the fact that during World War I, Negroes from the North, and from Ohio and Illinois scored higher than the whites in Arkansas and Mississippi (Montagu, 1945).

While no single study can be used to confirm the genetic equality of black and white children, an accumulation of results of a large number of studies would tend to reinforce the importance of environment in influencing the I.Q. appreciably.

Are I.Q. Tests Fair to Children of Minority Groups ?

One basic assumption in the use of I.Q. tests is that children to be tested must have had similar experience to the group on which the test was standardized. However, this is hardly the case when Negro children are given a test which is loaded with items familiar to children raised in the average cultural environment of urban areas. The lower class child tends to be less verbal, more fearful of strangers, particularly when they are white; they feel less confident, they are less motivated, and are less exposed to intellectually stimulating materials in the home. The toys available in the white home do not exist in most of the black homes. The Negro child is less knowledgeable about the world outside his neighborhood. Haggard (1954) showed that a less middle-class oriented test led to significant increases in test performance among the black. About a year ago, The New York Times reported on a scale "Soul-Folk Aptitude Test", which had been devised by a black, that was intended to measure intelligence in the ghetto. The items seemed to have been completely indigenous to the Harlem area. Any white child taking that test would not do as well as Negro children, for the simple reason that he could not be as familiar with the language and values of the area.

Besides unfamiliarity with the test items, there are other factors that may influence test results. We have already mentionned anxiety impairment. Now we shall mention empirical research which has studied other personality traits. The low self-esteem of the Negro child can affect his responses. He is not "supposed" to be bright. Katz, Epps, and Axelson (Pettigrew, 1964) administered a task to Southern Negro college students with two different sets of instructions. One group was told what level of achievement was attained by students in their college, and the other group was told what the whites had achieved. The group who compared their performance to the white performance did

significantly more poorly on the tasks, probably because of stronger concern and anxiety. A study by Canady (1936) showed that black children scored an average six points higher in an I.Q. test when the test was administered by an examiner of their own race. A recent unpublished study by Palmer (1968) showed that there was little discrepancy between middle class and lower class black children after the examiner had established rapport with the children for about six hours. No test was started unless the examiner felt that the child was relaxed and understood what was clearly expected of him. This is a situation that is hardly achieved with the mass testing conducted with black children. It is to be noted that many I.Q. tests put a premium on speed. There is generally little need for speed among lower class Negro adults, since work is usually paid by the hour, and high productivity rarely brings the expected promotion. Children could certainly be influenced by parental attitudes.

During his internship in clinical psychology, the author (Sanua , 1957) administered the Wechsler-Bellevue Intelligence Test to Puerto Rican males who were on Workmen's Compensation, and undergoing rehabilitation. The group that had arrived within the previous five years had an average verbal I.Q. of 82.9, and a performance I.Q. of 82.2. We had expected that the Puerto Ricans would have performed better on the performance part of the scale because it is usually assumed that the items in this subscale are less culture-bound than in the verbal part. Individuals who had been in the United States for more than five years scored 88.8 on the average verbal score, while achieving a mean score of 98.4 on the performance scale, which is close to normal. The acculturation seems to have increased the verbal I.Q. by 5.9 points, and the performance by 16.2 points. It would seem that the longer stay in New York might have impressed upon the Puerto Rican the need for speed in carrying out certain tasks. Thus, in time, the Puerto

Rican reaches almost the norms of the native-born Americans.

It has been emphasized that tests are unfair to lower class and rural children, and that culture-free tests should be devised. Efforts to that effect have not proven too successful. To measure "native intelligence" is an almost impossible task. In intelligence, every response to a stimulus is a learned response. While the intellectual structural assets of the individual are genetically determined, they cannot be expressed directly, but through the experience he has had. Dyer (1963) does not believe in culture-free tests, because two assumptions have to be fulfilled : (1) the learning needed to achieve on the I.Q. test should be commonly and equally available to all people, or, (2) the stimulus material in the test should be completely novel to people of all cultures. Since both these assumptions are most unlikely to be verified, a genuine culture-free test cannot be devised.

It is for this reason that Anastasi (1961) has indicated that the term "culture-free" test is misleading, and instead, used the term "cross-cultural testing." There is some drawback in making tests more "culture free", since they are used primarily to predict school achievement in our society. By making the tests less scholastically biased, we reduce the predictive validity of the primary purpose of these scales.

The Journal of Social Issues devoted two complete issues, Negro American Personality (Pettigrew and Thompson, Eds., 1964) and Motivation and Academic Achievement of Negro Americans, (Epps, 1969), to recent research in the field of black-white differences, showing the influence of a number of personality and societal variables on achievement. Deutsch and Brown's (1964) findings lend support to a "cumulative deficit" hypothesis regarding the incremental effects of social deprivation on intelligence test performance. Cravioto and Birch (The New York Times Week in Review, March 1, 1970) report that there is a growing chain of evidence con-

necting intelligence development with early nutrition. It is pointed out that the difficulty in this type of experiment is to find adequate control groups. Thirty-seven children hospitalized as babies for kwashkor in the Children's Hospital in Mexico City, were given an I.Q. test later in life. Siblings whose ages do not go beyond three years of the experimental group, who never had severe forms of malnutrition, were used as controls. It was felt that both socioeconomic factors and child-rearing practices would be controlled. The average intelligence quotient score of the experimental group was 68.5, and the average I.Q. for the control group was 81.5. According to Dr. Birch, these 'insults of environment' affect the child throughout life.

Conclusions

In this review of Jensen's report, we have selected only certain parts of his paper for discussion. Our general opinion is that he has not provided us with "evidence" that there are differences in "neural structure" among children from different social classes, or ethnic groups, which are "genetically determined." However, on the basis of his "findings", Jensen draws the "reasonable conclusions that schools and society must provide a range and diversity of educational methods, programs and goals, and occupational opportunities , just as wide as the range of human abilities." (p. 117). While the reviewer finds no objection to this general statement, he feels, however, that the premise upon which it is built is rather flimsy because of the implications that individuals of different backgrounds are genetically different. While Jensen's paper assumes that "neural structures" are different among the lower classes and black children , as compared to middle class groups, his own subsequent rebuttals, as well as comments by lay persons or otherwise, seem to concentrate primarily on racial differences among children. His paper actually devotes only 10 out of 123 pages to the racial problem.

While Jensen proposes to change the educational system in general terms, he is not specific about how this differential schooling is to be carried out in a practical way. Does he suggest that lower class children, and children of minority groups be taught only the skills involved in Level I learning ability, just because their I.Q. is lower ; or should there be some kind of screening ? Who would undertake such a responsibility ? Would children with upper class parents be denied education which involved "cognitive abilities" because they have lower I.Q.'s ? Such educational procedure would tend to produce a sharp dichotomy in our society, the "dulls" and the "brights" , despite the fact that Jensen denies that he used the term "inferior" to describe certain racial genotypes. He

states that he has emphasized differences in "patterns of abilities" . If Level I abilities are developed for some children, will they be able to function in a society which is becoming more and more complex .? Jensen's suggestions for a reform in education have not been carefully examined with regard to implementation and consequences.

From our own review of the literature, we have found, contrary to Jensen's contention, that genetic differences have neither been accepted or rejected. The general attitude of the majority of psychologists is that every child, unless brain damaged, (or at the very end of the I.Q. distribution) is capable enough to follow a regular schooling. Efforts should be made to improve not only the school system, but also the social environment as early as possible, so that every child can actualize his full intellectual potential. We can see one positive result from Jensen's report. Rather than reduce compensatory education, it should be an incentive for responsible officials to intensify earlier education of children, and continue further experimentation and innovation until the correct formula is found. The first years of life are so important that the die may already have been cast by the time the child starts his formal education, and even by the time toddlers are sent to Headstart programs.

Jensen frequently relies on authorities in genetics to support his view. He quotes the geneticist, C.O. Carter (1966) , who remarked that"sociologists who doubt genetic differences show more ingenuity than judgment." This controversy is somewhat akin to the polemic regarding the etiology of schizophrenia. A number of psychiatrists believe that schizophrenia is genetically or organically determined, while a large number of them believe in the strong contribution of a stressful environment on the development of schizophrenia. Thus, the selection of authorities is usually based upon one's convictions.

In 1968, Jensen co-edited with Deutsch and Katz, a book on Social Class, Race, and Psychological Development. In the volume, Jensen introduces a chapter on biogenetics by Gottesman (1968). We feel that in this introduction we refer to, his views are rather sober compared to the views expressed in his Harvard Educational Review report. The following represented his ideas at the time (1968).

> "Part of the problem is that we are not yet certain what the most relevant invironmental influences are, and therefore, we cannot measure environmental variations satisfactorily. ...
> "The situation with respect to race is more ambiguous, since racially distinguishing characteristics, such as skin color, which are irrelevant to intellectual ability (italics mine) are often barriers to social mobility. To the degree that a racial minority is restricted in its social mobility, the socio-economic status of the group will fail to reflect genetic potential. Data that would permit firm conclusions about the genetic basis of differences among ethnic groups in measured intelligence do not yet exist ..." (p. 9).

After a careful analysis of the data, Gottesman reached the conclusion that the "average American Negro" is non-existent (p. 20), and that "the science of human genetics cannot tell you whom to call Negro or white" (p. 22). According to Gottesman, I.Q. tests do not directly measure innate gene-determined intellectual capacity, but do measure current intellectual performance as defined by a particular culture, or at least by its psychologists. Gottesman states that the "question of how much of intelligence is due to heredity, and how much to environment is meaningless, since neither agent alone can produce the trait." (p. 32).

Another geneticist, James F. Crow (1969), who has written a critique in the Harvard Educational Review, points out that being white or being black in our society changes one or more aspects of the environment so importantly as to account for the differences.

Jensen has maintained that studies on racial differences have been frowned

upon and discouraged in the past. The fact remains that Shuey, in her second volume, covered approximately 400 of such studies. Jensen finds a great deal of satisfaction that his critics have agreed with him, "Seldom in my experience...have I seen the discussants of a supposedly "controversial" article so much in agreement with all the main points of the article they were asked to criticise." (Harvard Educational Review, Reprint Series No. 2). However, Jensen should realize that the major force of his critics was not directed to the data which he marshalled, (most of them were probably aware of it), but to the interpretation of the data. Jensen's presentation of the data has led James Cass, the Education Editor of The Saturday Review, to summarize his work in the following manner :

> "His findings, most starkly stated, are : Whites are more intelligent than Negroes ; intelligence is overwhelmingly the result of genetic inheritance rather than environmental influences ; this is why compensatory education programs for the disadvantaged have failed ; therefore, different kinds of education programs should be designed for children of different abilities--meaning, primarily, whites and blacks." (p. 67, May 17, 1969).

It is to be noted that Jensen, in a letter to the New York Times Magazine (November 15, 1969) has expressed his satisfaction with Mr. Edson's reporting of his views. Early in our paper, we indicated that Edson's review was too favorable to Jensen. The New York Times ought to have carried another, less biased review of Jensen's report, or, otherwise, presented a report expressing opposing views.

An evaluation of the controversy, as developed by Jensen, leads one to draw the following conclusions : In order to examine whether there are different intellectual characteristics between blacks and whites, the following three conditions must be fulfilled :

1. A Negro must be clearly identified on the basis of his genetic inheritance.

2. A culture-free test must be devised which does not favor one group over any other.

3. The black and white groups must have had a comparable background with regard to equal educational, economic and social opportunities.

Since, as we have indicated in the development of our arguments, none of these three conditions can be satisfactorily fulfilled, it is not possible at the present time to carry out such a project. Jensen has not suggested any design that would handle the above research difficulties. His one-sided attempt to present evidence on an old controversy has not really provided much enlightenment on a very complex problem.

Time Magazine of April 11, 1969, provides us with a sober assessment of Jensen's report, stating that using I.Q. tests as an attempt to rank intelligence of black and white is meaningless and bound to be mischievous in light of its political implications. The awareness of human intellectual diversity as being genetically determined is as old as Plato. But, Time, reporting on geneticist Lederberg's observations, writes, "It remains just a hypothesis, and we are not much better equipped than Plato was to assess it."

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